



## Duplex Silicone Foul-Release Coatings

Historically, marine antifouling paints have used compounds toxic to marine organisms as a means of combating fouling. Foul-release coatings do not use copper or any other metal toxicant to provide effective biofouling control; rather their unique surface chemistry creates a surface to which fouling can not easily adhere. Because they employ a physical rather than a chemical means to reduce fouling, these silicone coatings have been ruled exempt from reporting under FIFRA (Public Law 95-396).

NRL developed and patented an advanced foul-release coating called the duplex silicone coating system to address the durability issues associated with silicone elastomeric coatings. The duplex silicone coating system employs a tough, cross-linked thermoplastic



elastomeric layer (Silgan J501) to bond the foul-release silicone topcoat to the anticorrosive system for ship hulls or to the epoxy paint on concrete walls in power plants. The Environmental Security Technology Certification Program (ESTCP) demonstrations/

validations started in March 1995 and include:

- 6 Coast Guard aluminum hull boats
- 2 Navy Range Boats
- 1 Navy Transporter
- 1 Navy prototype SLICE
- Power plant cooling water intakes

The duplex foul-release coating system been endorsement under various nonpoint source pollution control programs and was described in the EPA Nonpoint Source News-Notes (April/May 1998, vol. 51, pp. 17-18). Many inquiries were received at NRL as a result of the published article on this nontoxic antifoulant coating including: (1) the Auckland Regional Council [equivalent to U.S. regional EPA], (2) BOATS/U.S.A. Clean Water Trust, (3) North Carolina National Estuarine Research Reserve, (4) NOAA, (5) Avondale Industries, Inc. [U.S. Navy Shipbuilding contractor], (6) San Diego Bay INRMP [Bay Ecosystem Plan being prepared by the Port of San Diego and the Navy] and (7) several municipal power companies in the Northeastern United States.

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